



1930 Ninth Avenue
Helena, MT 59601
406-457-8900
publichealth@lccountymt.gov
www.LewisAndClarkHealth.org

For IR Public Health Column

August 2015

Contact: Melanie Reynolds, Health Officer, 406-457-8910

Gayle Shirley, Communications Manager, 406-457-8908, 406-439-4503 (cell)

Drought Can Threaten Health In Unexpected Ways

**By Melanie Reynolds
County Health Officer**

Last month, federal officials declared 15 Montana counties natural disaster areas because of drought. Lewis and Clark County was among them.

You probably didn't need an official declaration to alert you that it's dry out there. Plumes of wildfire smoke, shrinking lakes and rivers, fish kills, and toxic algae blooms have provided plenty of circumstantial evidence this summer. Official drought monitors indicated that the county was in a moderate to severe drought as of Aug. 11. Let's hope no worse is yet to come!

Drought can wreak havoc on the lives of farmers, ranchers, and firefighters. Although it may be less obvious, it can impact public health, too. It can promote illness, disease, and injury as a result of:

- poor air quality;
- reduced quantity and quality of drinking water;
- compromised food and nutrition;
- less sanitation and hygiene; and
- increased recreational risks.

These impacts can be difficult to see and measure because of the length of time between the first warning signs of drought and any harm to human health. But scientists are beginning to look more closely at these issues, in part because of concerns about climate change and its impact on future rainfall patterns. They worry that the severity of drought is likely to increase in the next century because of changes in the Earth's temperature patterns.

Significant droughts have affected North America for the past 10,000 years, according to the National Oceanic and Atmospheric Administration. Some lasted a single season; others stretched for decades. In the past century, on average, about 14 percent of the United States has experienced severe or extreme drought in any given year.

Arguably the most famous drought of the past century was the Dust Bowl of the 1930s. Great clouds of dust prompted health officials of the time to distribute thousands of face masks to help prevent “dust pneumonia.” The disease caused high fever, coughing, chest pain, and difficulty breathing. It was often fatal.

Health experts also blamed the drought for causing more malnutrition, rickets, pellagra, and intestinal disorders.

Air Quality

While we’ve been spared (so far) the great dust clouds of the Thirties, we in Lewis and Clark County are certainly familiar with poor air quality related to drought. As I write this, 10 wildfires are spewing ash, smoke, and carbon monoxide into the air we Montanans breathe. In the Helena area, this pollution often settles into the valley, where it can irritate lungs and bronchial passages. It can worsen chronic respiratory diseases like asthma and increase the risk of acute respiratory diseases like bronchitis and pneumonia.

Lewis and Clark Public Health issues air-quality alerts when pollution from wildfire smoke (as well as woodstove smoke in the winter) threatens people’s health.

Other drought-related factors can affect air quality, too. For example, low water levels can lead to warmer water temperatures in lakes and rivers. This can encourage the growth of pathogens that can become airborne and cause disease.

Water Quality

Drought can affect water quality in many ways. Dwindling stream flows can increase the concentration of pollutants in the water and cause stagnation. Stagnant water provides breeding grounds for mosquitoes, which can infect people with West Nile virus.

Higher water temperatures in lakes and reservoirs can reduce oxygen levels, affecting water quality and killing fish and other aquatic life. Heavy sediment in runoff from wildfires can have the same effect.

High sediment loads in waterways also can clog filters at water treatment facilities. Tiny ash particles can flow right through the filters and affect the look and taste of drinking water.

In the Helena Valley, many people rely on groundwater for drinking. Less rain and more evaporation of surface water can prevent a groundwater aquifer from replenishing itself and potentially cause wells to go dry. As wells draw water from a wider area, they may become contaminated by nitrates, fertilizers, or other chemicals.

Viruses, protozoa, and bacteria can pollute both surface and groundwater when rainfall decreases, so people who get their drinking water from private wells run the risk of getting sick.

Food and Nutrition

Drought can limit the growing season and create conditions that encourage insect and disease infestations. Livestock can become malnourished, diseased, and die. These can lead to higher food prices and shortages, potentially leading to stress and malnutrition in parts of the population.

Augmenting the diet through fishing and gardening becomes more difficult.

Sanitation and Hygiene

People are rightly encouraged to conserve water during drought. Unfortunately, they may choose methods that actually put their health at risk, like cutting back on handwashing or using recycled water inappropriately.

There are plenty of ways to conserve water without giving up healthy habits. As just one example, you can install low-flow faucet aerators to reduce water consumption. For other ways to conserve, visit the Environmental Protection Agency website at <http://water.epa.gov/polwaste/nps/chap3.cfm>

Recreational Risks

High temperatures and little rain can encourage many people to head to the lake to cool off. Yet drought can increase the risk of waterborne disease for people who enjoy boating, swimming, and other forms of water recreation.

Low water levels cause water temperatures to climb, and this can encourage the growth of disease-causing organisms. Other contaminants, like chemicals and heavy metals, become more concentrated.

As evaporation causes water levels to drop, people also run the risk of life-threatening injuries. They may dive into water that's suddenly shallow. Boaters may hit debris that used to be safely below the surface.

What Does It Mean?

Drought is unlike other natural disasters like floods, wildfires, and earthquakes. It can take years for drought conditions to escalate to the point that health impacts are evident.

That's why it's important for us to think now about drought in terms of public health. Though slower to manifest, the consequences to health can be serious.

As a community, we need to plan so we're ready for the next Dust Bowl.

To learn more about the status of drought in Montana and the county, visit the National Drought Mitigation Center at <http://droughtmonitor.unl.edu/Home/StateDroughtMonitor.aspx?MT>